Air Force Civil Engineer
Vol. 17
Special Ed. 1
2009

Special Edition: Subject Matter Experts

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Special Edition: Subject Matter Experts

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On the Cover

Arrival and Departure Airfield control Group Facility, Pope AFB, N.C. (U.S. Army photo by Mr. Jonas N. Jordan)

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Air Force Civil Engineer is published quarterly as a funded newspaper by the Professional Communications staff at the Air Force Civil Engineer Support Agency, Tyndall AFB, Fla. This publication serves the Office of The Civil Engineer, HQ U.S. Air Force, Washington, D.C. Readers may submit articles, photographs, and artwork. Suggestions and criticisms are welcomed. All photos are U.S. Air Force, unless otherwise noted. Contents of *Air Force Civil Engineer* are not necessarily the official views of, or endorsed by, the U.S. government, the Department of Defense, or the Department of the Air Force. Editorial office: *Air Force Civil Engineer*, AFCESA/CEBH, 139 Barnes Drive, Suite 1, Tyndall AFB FL, 32403-5319, Telephone (850) 283-6242, DSN 523-6242, FAX (850) 283-6499, and e-mail: cemag@tyndall.af.mil. All submissions will be edited to conform to standards set forth in Air Force Instruction 35-101 and The Associated Press Stylebook. *Air Force Civil Engineer* is accessible on the Internet from AFCESA's home page: http://www.afcesa.af.mil. Individual subscriptions available via GPO (http://bookstore.gpo.gov).

Civil Engineering's Subject Matter Experts

The responsibilities of today's Air Force civil engineers span every discipline of engineering. Our engineers are frequently called upon to provide a wide range of expertise to support installation and contingency commanders. Because every civil engineer cannot be the authority in every area of engineering, we have a program in place that ensures we have experts available to them.

This special issue of the Air Force Civil Engineer magazine focuses on our civilian Subject Matter Experts (SMEs) —a cadre of technical experts, each with the unique blend of experience, education, and training to be the Air Force's authority in their respective area of expertise.

Our Subject Matter Experts provide continuity, as well as assurance that our civil engineering "know-how" keeps pace with lessons learned, ever-changing technology, federal guidance, and industry standards. The standards and criteria they publish helps Air Force civil engineers work more skillfully and efficiently and not repeat mistakes of the past.

Although they might have gone by another name, Civil Engineering has had subject matter experts for almost 40 years. As our responsibilities have grown in number and complexity, more SMEs have come on board to furnish the depth of knowledge required in specific areas. Currently, there are 26 SME positions at HQ AFCESA and HQ AFCEE. In the future, you will see SME representation at the Air Force Real Property Agency and some select MAJCOM staffs.

Many outside the Air Force also benefit from Civil Engineering's subject matter expertise, including joint working groups, our industry partners and vendors, as well as professional organizations and research programs. Our SMEs provide a conduit for the synergistic flow of technical knowledge and requirements, ensuring that our civil engineers have the most up-to-date information, tools, and material to accomplish the mission.

In the following pages, you'll read about our SME program areas and be introduced to the individual experts who make up the program. On any given day, our SMEs can be found resolving issues impacting their area of expertise, developing technical guidance, giving advice to MAJCOM or installation engineers, developing and advocating for required technical courses, or mentoring technical personnel across the Air Force. In general, each SME has a Masters Degree or higher in their functional area, is a registered professional (or equivalent), and is recognized as an expert by their peers and industry.

Collectively, our SMEs represent a vast wealth of engineering knowledge and technical expertise. I hope you will find this special issue informative and useful, and take every advantage of this valuable resource: our Civil Engineering Subject Matter Experts.

Del Eulberg
Major General, USAF
The Air Force Civil Engineer

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Air Resource Management

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Scope

The Air Force is committed to achieving the highest degree of air quality compliance while sustaining its mission. The Air Resource Management Program provides the tools, technical resources, expertise, processes, and techniques to achieve regulatory compliance with the Clean Air Act (CAA), which is the primary regulatory statute for improving the nation's air quality and ensuring that federal agencies meet state and federal air pollution control standards. The program consists of promoting compliance excellence, developing criteria, offering technical consultation/advice, tracking compliance, and representing the Air Force on tri-service panels. The air quality SME participates on the CAA Services Steering Committee and, in partnership with program managers at the three Regional Environmental Offices, provides guidance, develops policy, and sponsors and advocates for regulatory/industry partnerships.

Vision

Facilitate and advance the confluence of air managers' skill, knowledge, creativity, commitment, and daring to promote and sustain air quality compliance excellence at all Air Force facilities; move beyond compliance with a goal of protecting the airshed and ensuring that it can sustain the Air Force mission.

Industry Trends

- EPA's Advanced Notification of Proposed Rulemaking for Regulating Greenhouse Gases under the CAA precedes upcoming regulation
- New Non-Attainment Designations for Ozone and PM2.5 (fine particles)
- Promulgation of additional area national emissions standards for hazardous air pollutants (NESHAPs)

Program Challenges

- Develop technical, legal, and policy analyses of CAA compliance requirements while sustaining the Air Force mission.
- Create a broader understanding of asset management as it relates to the Air Force's air quality program.
- Enhance understanding and protection of ecosystems affected by air pollution.
- Provide technical reach-back support for Air Force customers and stakeholders.

Critical Initiatives/Developments

- Improving identification and assessment of the most significant exposures, risks, and uncertainties through trend analyses and playbook development (ongoing)
- Improving technical approach and assumptions in analyses of the Air Force carbon footprint (Jan 2010)
- Formulating and implementing installation-level guidance regarding greenhouse gas inventories (Jan 2010)
- Using integrated approach to control emissions of most risk-significant pollutants (ongoing))
- Promoting cost-effective compliance through the DOD CAA Services Steering Committee (ongoing)
- Working with DOD to develop compliance strategy on newly promulgated rules (ongoing)
- Consolidating Air Managers' resources onto AFKN CoP (ongoing)

Services and Resources

Program resources located at Air Force Air Quality Program CoP: https://afkm.wpafb.af.mil/airquality

AFCEE's Air Resource Management Services and Products: https://140.140.58.122/products/air/default.asp

SME Biography

Mr. Castaneda is a registered professional engineer for the state of Texas, specializing in chemical engineering. He has worked for the Air Force as an environmental engineer for over 20 years with 10 of those years in the field of air quality. He has a bachelor's in chemical engineering from Texas A&I University and a master's in Military Operational Art and Science from the Air Command and Staff College; he has also completed Air War College. As the air quality SME, Mr. Castaneda serves as the Air Force final technical authority for air quality management/compliance and establishes the standard to meet worldwide customer requirements.

Antiterrorism and Force Protection

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Scope

The Antiterrorism and Force Protection (AT-FP) SME provides guidance on facility security engineering to mitigate the risk of casualties from terrorist attacks. The SME manages the program; promotes site planning, design and construction compliance; develops design criteria for Air Force facilities, offers technical consultation; and represents the Air Force on the tri-service Security Engineering Working Group (SEWG) to develop DOD engineering standards and criteria for facility antiterrorism mitigation. The AT-FP Program covers both garrison and expeditionary requirements and is focused on all Air Force assets, including personnel, equipment, and information. Security engineering encompasses a wide range of threats, including explosive devices, direct- and indirect-fired weapons, and forced entry and surveillance. The SME is responsible for Air Force small arms range design and construction criteria and standard facility drawings.

Vision

Improve protection against terrorism for DOD personnel and other assets through enhanced planning and design standards in new and existing facilities.

Industry Trends

- More lightweight and portable protective construction materials
- Mobile/active small arms training

Program Challenges

Security engineering standards cut across all engineering disciplines. Many planning and design practices are not available in commercial design standards so DOD must accomplish the research and development required to set security engineering standards. Many of the needed security engineering UFCs are either in development or not yet begun.

Critical Initiatives/Developments

- Indirect fire testing procedure development for commercial AT-FP products (2009)
- Twelve UFCs currently in development or under revision (2009)
- Source selection of next generation of deployable earth-filled barriers (2009)
- Expeditionary barracks design (2009)
- Standard design drawings for Air Force small arms ranges (2009)
- Test material to provide effective pre-detonation construction techniques (2010)
- Design criteria to improve blast performance of cold-form steel construction (2010)

Services and Resources

AT/FP Installation Engineering CoP: https://wwwd.my.af.mil/afknprod/ASPs/CoP/OpenCoP.asp?Filter=OO-EN-CE-A7

Army Protective Design Center: https://pdc.usace.army.mil

Antiterrorism Enterprise Portal: https://atep.dtic.mil/login/generic2.jsp

AFCESA AT/FP: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299930&channelPageId=-336217&parentCategoryId=-1900281&programId=1242492

AFCESA Small Arms Range Design and Criteria: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299923&channelPageId=-336217&parentCategoryId=-1900281&programId=1242492

Air Force Criteria on Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

Unified Facilities Criteria: http://www.wbdg.org/references/pa_dod.php

SME Biography

Mr. Nielsen has over 23 years of professional experience in the engineering and construction field. He has served at base level in both SAC and PACAF as a civil engineering section chief, followed by staff assignments at HQ AFMC and HQ USAFE before becoming the AT/FP and structural SME at AFCESA in 2006. Mr. Nielsen is currently the SME for AT-FP construction, structural engineering, hardening, bridges, dams, roofing, and small arms ranges. Mr. Nielsen is a graduate of the University of Maine and holds a professional engineering license from Oregon.

Architecture

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Scope

The Architecture Program consists of guidance on facility architecture, interior design, and landscape architecture, as well as providing tools, resources, expertise, processes, technical information, and techniques to achieve design excellence in these areas. The SME is responsible for program guidance, policies, promotion, and implementation. The SME develops design criteria for Air Force facilities, offers technical advice, and represents the Air Force on DOD panels such as the tri-service Architecture Discipline Working Group and the committee that develops and coordinates DOD and industry architectural design standards. The SME works with the career field manager on mentoring, training, education, recruitment, retention, and professional registration opportunities and manages the Air Force Design and Construction Awards.

Vision

To facilitate and advance the confluence of architects, interior designers, and landscape architects' skill, knowledge, creativity, commitment, vision, and daring to promote and sustain design excellence of Air Force facilities.

Industry Trends

- Building information modeling (BIM) is the process of generating and managing building data during its life cycle; the architectural, engineering, and construction (AEC) industry is adopting BIM for facility design, building, and facility management.
- Sustainable Design practices are being adopted by the architecture design community. Such designs incorporate the principles of economic, social, and ecological sustainability into the built environment.

Program Challenges

- Providing a multi-faceted, hands-on design program to maintain and grow a pool of well-qualified Air Force architects.
- Enhancing retention and career progression of Air Force architects with CE career field advancement programs and opportunities.
- Assuring that the Air Force is evolving with the AEC industry by continued research with new construction materials and virtual building modeling techniques.

Critical Initiatives/Developments

- Air Force Architects Mentoring Program (2009)
- Air Force guidance for incorporating BIM (2009)
- Air Force programming guidance (2009)
- Air Force Design Excellence Guide (2010)
- Air Force architects hands-on design internship program (2010)
- Air Force Landscape Architects and Architects Training Workshops (Annually)
- Air Force Interior Designers Workshop (Semi-annually)

Services and Resources

Architecture and Interior Design program resources on Facility Architectural Design Excellence CoP: https://wwwd.my.af.mil/afknprod/ASPs/CoP/OpenCoP.asp?Filter=OO-EN-AF-32

Landscape Design program resources on the Landscape Architecture CoP: https://wwwd.my.af.mil/afknprod/ASPs/CoP/EntryCoP.asp?Filter=OO-MS-CE-21

Facility design resources at the Whole Building Design Guide site: http://www.wbdg.org/ccb/browse_org.php?o=33

AFCEE's Design and Construction Products: http://www.afcee.af.mil/resources/designandconstruction/index.asp

SME Biography

Mr. Sinkfield, a member of the American Institute of Architects (AIA), has worked as an Air Force architect for over 30 years, including six years as an active duty officer. He has also served as a Reserve civil engineering IMA for 13 years. He became the Air Force Architecture SME in 2006. Mr. Sinkfield has a B.A. in architecture and an M.A. in management and is both a registered architect and a registered interior designer in Texas. He is the author or editor of many Air Force facility design guides and architectural programming tools, and works with AIA committees to develop training programs.

Chemistry

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Scope

The Chemistry Program comprises guidance on chemistry and quality systems and the provision of tools, training, resources, expertise, processes, technical information, and techniques. The Chemistry SME manages the program and promotes chemistry and quality systems excellence, as well as design, planning, implementation, and review of environmental quality systems. The SME represents the Air Force on tri-service and interagency workgroups and committees developing national standards on emerging contaminants, such as the National Institute of Environmental Health Sciences Superfund Basic Research External Advisory Group and the Ecological Impact/Transport and Transformation Subcommittee of the Interagency Perchlorate Steering Committee. The SME has also served as an Air Force technical expert to the Office of the Secretary of Defense's Emerging Contaminants Directorate. The SME manages and coordinates with the career field manager on mentoring, training, education, recruitment, retention, and professional registration opportunities.

Vision

To promote the implementation of good chemistry practices and quality systems to facilitate and enhance project planning in the acquisition of quality data for sound decision making in Air Force projects.

Industry Trends

- Green, or sustainable, chemistry is the design of products and processes that reduce or eliminate the use or generation of hazardous substances; applied across the life cycle, this initiative will impact acquisition strategies and end users.
- New sampling strategies, such as multi-increment or activity-based sampling, for the characterization of hazardous waste sites.
- Development of nanoscale chemicals with hazards, exposures, and risks still largely unknown.

Program Challenges

- Providing a multi-faceted internship program in order to maintain a pool of professional practitioners and ensure graduate Air Force chemists have the opportunity to experience career-broadening assignments in laboratory and consultation organizations.
- Enhancing retention and career progression for Air Force chemists with opportunities and incentives to engage in CE career field advancement programs; ensure cross-feed between the civil engineer and the scientist and engineer career programs.

Critical Initiatives/Developments

- Chemistry programming guidance (2009)
- Performance audits/proficiency testing (2009)
- Triad/rapid site characterization (2010)
- Implementation of Unified Federal Policy, Environmental Quality Systems (2010)

Services and Resources

AFCEE's Chemistry Guidance and Products: http://www.afcee.af.mil/resources/technologytransfer/guidanceforcontractdeliverables/index.asp

SME Biography

Mr. Long has worked for the Air Force as a chemist for over 22 years. He began his Air Force career after completing a B.S. in chemistry from New Mexico Highlands University, Las Vegas, N.M., and two years of post-graduate work in chemistry at New Mexico State University in Las Cruces, N.M. He also holds an M.S. in environmental science from the University of Texas at San Antonio. Currently, Mr. Long serves as the Air Force SME for chemistry, as well as for quality systems, data quality objectives, and data quality assurance.

Corrosion Control

Position currently vacant; acting SME:
Michael Zapata, P.E., HQ AFCESA/CEOA
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Scope

The Corrosion Control SME focuses on preventing and mitigating material degradation of facilities and infrastructure by addressing the four areas of corrosion control: cathodic protection, protective coatings, industrial water treatment, and design/material selection. The SME represents the Air Force on the DOD Corrosion Prevention and Control Integrated Process Team, which develops criteria, tools, and training to prevent and mitigate corrosion degradation of DOD assets. The SME is also the Air Force Facilities representative on the working group for the Air Force Corrosion Prevention Advisory Board to define, research, and coordinate corrosion-related strategies for acquisition, construction, and maintenance of equipment, weapons, and facilities/infrastructure.

Vision

Provide premier engineering expertise to prevent and mitigate corrosion degradation of facilities and infrastructure to ensure full operation and service life.

Industry Trends

- Increasing awareness of corrosion costs, with the Federal Highway Administration corrosion study determining that $276B (3.1% of GDP) is spent annually in the United States on corrosion
- Increasing legislation and oversight of corrosion: Congress passed 2003 law for DOD to address corrosion in weapons and facility/infrastructure and DOD established the Office for Corrosion Policy and Oversight (weapons and infrastructure)
- Increasing public awareness of corrosion control with catastrophic pipeline failures resulting from corrosion in the petrochemical industry

Program Challenges

Influence CE culture to incorporate corrosion control considerations in the CE process as long-term, first-cost investments.

Critical Initiatives/Developments

- Update AFI 32-1054, "Corrosion Control" (2009)

Services and Resources

AFCESA Corrosion Control CoP: https://wwwd.my.af.mil/afknprod/ASPs/CoP/OpenCoP.asp?Filter=OO-MS-CE-39

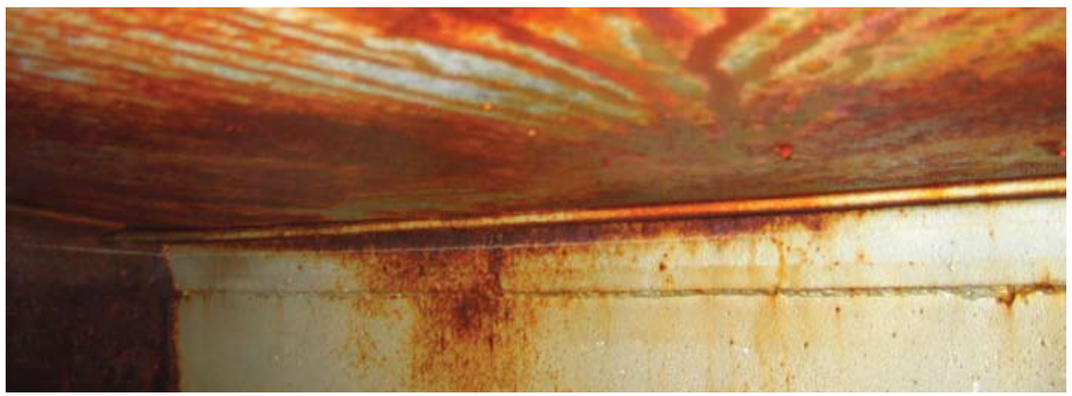
AFCESA Corrosion Control: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299951&channelPageId=-336217&parentCategoryId=-19002281&programId=1242492

Air Force Criteria on Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

Unified Facilities Criteria: http://www.wbdg.org/references/pa_dod.php

SME Biography

Mr. Zapata has more than 20 years of Air Force civil engineer experience, serving as a mechanical engineer at base level and as a corrosion engineer at command level. Mr. Zapata is a registered professional engineer in Virginia and a NACE-certified cathodic protection specialist. He is a graduate of Texas Tech University and Hardin-Simmons University.



Cultural Resources

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Scope

The Air Force Cultural Resources Management (CRM) Program comprises three broad categories: prehistoric and historic archaeology; historic buildings and structures; and American Indian tribal issues (including issues important to Native Alaskan and Native Hawaiian organizations). The SME works with multidisciplinary professional staff at Air Staff, MAJCOMs, and installations to provide Air Force–wide integrated programs in cultural and natural resources management, compliance, and protection.

The SME organizes and hosts an annual workshop for other Air Force CRM professionals and paraprofessionals for the discussion of major initiatives, laws and regulations, policies, issues, problems planning, and funding. The SME is responsible for developing policy through periodic revisions to AFI 32-7065. The SME represents the Air Force on numerous committees and working groups, including DOD's Historic Preservation Working Group and Archaeological Committee, and is responsible for collecting, compiling, and verifying CRM data required by DOD and the Department of the Interior.

Vision

Increase knowledge of our historic resources; establish better means of identifying, evaluating, and administering them; and encourage their preservation, to improve Air Force planning and mission support and ensure our rich national heritage for future generations.

Industry Trends

- New DOD Instruction on CRM is driving more detailed and comprehensive measures of merit, which will significantly affect CRM annual reporting requirements and increase cooperation between CRM and real property functions.
- Addressing archaeological collections long-term curation and storage issues on a comprehensive national level, with a draft regulation on deaccessioning artifacts and collections that are highly redundant or no longer scientifically valuable.

Program Challenges

- Rightsizing historic facilities appropriately; meshing Air Force demolition goals with stewardship and compliance requirements and processes.
- Maintaining a pool of professional CRM anthropologists, archaeologists, and historical architects.
- Ensuring that future military actions are more sensitive and responsible to in-country history, archaeology, tradition, and heritage assets.

Critical Initiatives/Developments

- DOD guidance on cultural resources in overseas and deployed situations (2008)
- Air Force CRM Mentoring Program (2009)
- DOD and Air Force guidance for environmental and force protection upgrades to historic buildings (2009)
- Air Force EQ POM programming guidance (2009)
- Accuracy and inclusiveness of Air Force Real Property database historic codes (2009-10)

Services and Resources

Program resources on the Air Force Cultural Resources CoP: https://afkm.wpafb.af.mil/ASPs/CoP/OpenCoP.asp?Filter=OO-MS-AF-03

Design resources for historic buildings on the Whole Building Design Guide's site: http://www.wbdg.org/ccb/browse_org.php?o=33

DOD Environmental information (CRM policy, guidance, data): https://www.denix.osd.mil/portal/page/portal/denix

SME Biography

Dr. Wilde, a registered professional archaeologist, has over 35 years of government and industry experience in archaeology and anthropology, as a manager, researcher, field investigator, and educator. He has been the manager, and more recently the SME, for the Air Force Cultural Resources Program for over 13 years. He has B.A., an M.A., and a Ph.D. in anthropology and has authored or co-authored over 25 publications, including articles, chapters, and books.

Electrical

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Scope

The Electrical SME delivers guidance on electrical power supply and distribution, lighting and controls, stationary battery rooms, emergency and standby generators, interior and exterior electrical systems, and electrical safety. The program is wide-ranging, covering many aspects of conventional facility design, repair, and electrical safety. The SME manages the program, promotes design and construction excellence, develops design criteria for Air Force facilities, offers electrical technical consultation, provides experience, and represents the Air Force on the Tri-Service Electrical Working Group (TSWEG). The TSEWG develops consolidated DOD engineering standards and criteria and has authority over electrical code issues in the CENTCOM AOR.

Vision

Facilitate and advance the confluence of electrical engineering skill, knowledge, creativity, and commitment to promote and sustain facility design excellence.

Industry Trends

- OSHA and NFPA 70E, "Standard for Electrical Safety in the Workplace," are driving new requirements for personnel who work on electrical circuits. These changes significantly impact current AFI and UFC guidance.
- Recent electrical and industrial control system cyber vulnerability concerns require that new information assurance safeguards be implemented to prevent unauthorized access.

Program Challenges

- Continuing to provide electrical engineering support to installations and the warfighter despite the continuing drawdown of engineers with electrical knowledge and expertise.
- Expanding accessibility of electrical engineering resources.

Critical Initiatives/Developments

- UFC 3-560-01, "Electrical Safety O&M" (2007)
- ETL 07-1, "Design Criteria for Underground Electrical Distribution Systems Using Directional Boring (DB) Installation Methods for Installing High-Density Polyethylene Electrical (HDPE) Conduit" (2007)
- ETL 09-9, "Use of Cannon Plug and Cam-Lock Style Connectors for Generator Connectivity for Systems Operating less than 600 Volts and for Cable Sizes less than #4/0" (2009)
- ETL 09-10, "Aurora Electrical System Vulnerability and Mitigation" (2009)
- ETL 09-11, "Industrial Control System Cyber Security Methods" (2009)
- Electrical arc flash protection criteria for military clothing (2009)
- Distributed generation protection schemes and motor bus transfer design techniques (2010)
- Medium-voltage substation protection schemes (2010)

Services and Resources

AFCESA Electrical Systems CoP: https://rso.my.af.mil/afknprod/ASPs/CoP/EntryCoP.asp?Filter=OO-EN-CE-44

AFCESA Electrical Power Production CoP: https://rso.my.af.mil/afknprod/ASPs/CoP/EntryCoP.asp?Filter=OO-EN-AM-02

AFCESA Electrical Engineering: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299933&channelPageId=-336217&parentCategoryId=-1900281&programId=1242492

Air Force Criteria on Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

Unified Facilities Criteria: http://www.wbdg.org/references/pa_dod.php

SME Biography

Dr. Hammond has more than 33 years of experience in the Air Force electrical field, having served as an electrician, electrical engineer, chief of engineering, telecommunications engineer, and program manager at HQ AFMC, HQ USAFE, and the Air Force Research Lab. He has published numerous articles on electrical design and safety in *Air Force Civil Engineer*, *Torch* (AETC), and *Combat Edge* (ACC). Dr. Hammond is a graduate of California State University at Sacramento, the Air Force Institute of Technology, and Oklahoma State University. He holds professional electrical engineering licenses in California and Ohio, and is a licensed electrical contractor in California.

Electronics/ Controls

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Scope

The Electronics/Controls SME provides tools, resources, processes, technical information, and techniques on control systems, airfield lighting, and lightning protection to achieve design excellence. The SME manages the program and participates on the Tri-Service Electrical Working Group to develop consolidated DOD engineering standards and criteria. The SME is a member of the National Fire Protection Association committee on lightning protection and also regularly presents to the Illuminating Engineering Society aviation lighting committee and the international Airfield Marking, Lighting, and Infrastructure Panel.

Vision

Facilitate and advance the confluence of engineering skill, knowledge, creativity, and commitment to promote and sustain facility design excellence while ensuring maintainability for the field and reliability for the user.

Industry Trends

- Growing concern over the vulnerability of microprocessor-based systems at the same time we are installing more systems and increasing the amount of data they collect and monitor.
- LED lighting is being investigated for more airfield and area applications.
- Solar-powered lighting is being investigated in the realm of alternative energy.

Program Challenges

- Continuing to provide airfield lighting, grounding, and lightning protection support to installations and the warfighter despite the continuing drawdown of engineers with controls knowledge and expertise in lightning protection.
- Expanding accessibility of new technologies to airfield operations.

- Ensuring that monitoring/control systems use evolving technology to prevent early obsolescence
- Providing airfield lighting and lightning protection system support to AFCENT AOR
- Monitoring design of airfield lighting and lightning protection systems to ensure compliance with required references
- Ensuring that bases don't install systems that implement new technology until it is validated by industry

Critical Initiatives/Developments

- A-Gram on Overhead Lightning Protection Systems (2009)
- UFC 3-535-01, "Visual Air Navigation Facilities" (2009)
- ETL 8-08, "C-130 and C-17 Landing Zone (LZ) Dimensional, Marking, and Lighting Criteria"(2008)

Services and Resources

AFCESA Electrical Systems CoP: https://rso.my.af.mil/afknprod/ASPs/CoP/EntryCoP.asp?Filter=OO-EN-CE-44

AFCESA Electrical Engineering: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299933&channelPageId=-336217&parentCategoryId=-1900281&programId=1242492

AFCESA Lightning Protection: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299948&channelPageId=-336217&parentCategoryId=-1900281

AFCESA Grounding: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299947&channelPageId=-336217&parentCategoryId=-1900281

Air Force criteria on Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

Unified Facilities Criteria: http://www.wbdg.org/references/pa_dod.php

SME Biography

Ms. Joanie Campbell has more than 23 years of Air Force civil engineering experience. She served as base electrical engineer at Columbus AFB, Myrtle Beach AFB, and Seymour Johnson AFB, and as an electrical engineer at command level for more than seven years. Ms. Campbell is a registered professional engineer in Virginia and holds a master electrician's license in Mississippi. She received her bachelor's and master's degrees in electrical engineering from Mississippi State University and is a member of the Mississippi State University, Bagley College, Engineering Advisory Board.

Emergency Management

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Scope

The Emergency Management SME provides emergency management and chemical, biological, radiological, nuclear, or high-yield explosive (CBRNE) defense guidance, policy, training products, and logistical support with the main mission of saving lives while minimizing the loss or degradation of resources to continue, sustain, and restore combat support operational capability in an "all hazards" physical threat environment at Air Force installations worldwide. The ancillary missions of the program are to support homeland defense operations and to provide support to civil and host-nation authorities. The program incorporates in-garrison and deployed forces cross-functional actions to implement integrated homeland defense, medical, CBRNE, antiterrorism, force protection, and crisis and consequence management operations and requirements as they are related to "all hazards" incident response and recovery operations.

Vision

The primary focus of the Air Force Emergency Management Program is to ensure the Air Force has a single, integrated "all hazards" program with a primary focus of saving lives, minimizing the loss or degradation of resources, and ensuring continued operational capability at all times.

Industry Trends

- Federal, state, and local governments and private organizations have been energized by federal laws and local responses to improve the response capability by including interagency operability.
- The Air Force supports the emergency management programs of the Departments of Defense, Energy, Justice, Transportation, Homeland Security, Health and Human Resources, and many other agencies consistent with Air Force operational requirements.

Program Challenges

- Adapt to changes resulting from recent events (e.g., 9/11, Hurricane Katrina) and threats from nation as well as non-nation states, and to updates within the emergency preparedness community.
- Integrate and incorporate requirements of the National Incident Management System and the National Response Framework through the Air Force Incident Management System.

Critical Initiatives/Developments

- AFI 10-2501, "Air Force Emergency Management Program Planning and Operations" (2007)
- AFPAM 10-100, "Airman's Manual" (2009)
- AFMAN 10-2502, "Air Force Incident Management System Standards and Procedures" (2010)
- AFMAN 10-2503, "Contingency/Wartime Chemical, Biological, Radiological, Nuclear and High-Yield Explosive (CBRNE) And Terrorist Use of CBRNE Materials" (2010)
- AFMAN 10-2504, "Air Force Incident Management System Guidance for Major Accidents and Natural Disasters" (2010)
- AFMAN 10-2507, "Readiness and Emergency Management Flight Operations" (2010)
- AFMAN 10-2508, "Emergency Response Integrated Response" (2010)

Services and Resources

Air Force Emergency Management CoP: https://afkm.wpafb.af.mil/EmergencyManagement

Emergency Management on the AF Portal: https://www.my.af.mil/gcss-af/USAF/ep/globalTab.do?pageId=681743&channelPageId=-316091

AFCESA's Emergency Management Division (AF Portal): https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1248248&channelPageId=-336217&parentCategoryId=-1769215&programId=1241886

AFCESA Readiness Support Directorate (Public site): http://www.afcesa.af.mil/directorates/cex/index.asp

Ready America, Ready Air Force: http://www.ready.gov/america/getakit/airforce.html

SME Biography

Mr. Mike Connors has over 26 years of Air Force and emergency management experience covering all aspects of the Air Force Emergency Management and CBRNE programs at wing, MAJCOM, numbered air force, and field operating agency levels. Mr. Connors has published several articles on emergency management and the ability to survive and operate in a chemical environment in the *Military Engineer* and *The Inspector General Brief* magazines. Mr. Connors has multiple degrees from the Community College of The Air Force and will receive a B.S. degree from Park University in September 2009.

Environmental Restoration

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Scope

The Environmental Restoration Program - Optimization (ERP-O) initiative supports the optimization of the Air Force's $400M ERP, as mandated by AFI 32-7020, and the SAF/IEE Performance-Based Cleanup Policy Letter dated October 27 2004. Multiple AFCEE SMEs coordinate to develop guidance, policies, promotion, and implementation of the ERP-O, which has four primary objectives: 1) mentor, train, and guide AFCEE project managers; 2) provide ERP-O services and oversight; 3) provide program information to stakeholders using Web-based collaboration tools; and 4) serve as AFCEE's technical authority for remediation process optimization (RPO). The SME is responsible for Air Force criteria, standards, manuals and directives to guide commands, installations, and contractors in ratification of conceptual site models, remediation design, remedial action construction, performance operation assessment, maintenance, repair and optimization of installations ERPs. The SME is the Air Force representative to board of advisors of the Interstate Technology Regulatory Council (ITRC) and assists in developing ITRC educational and training programs.

Vision

Maximize the effectiveness and minimize the financial liabilities and environmental footprint of the Air Force environmental restoration program through competent technical leadership and guidance. Ensure that the ERP-O is an effective, efficient, and reliable resource to the Air Force Environmental Restoration Program.

Industry Trends

Emerging issues have a significant impact on Air Force environmental liabilities, including new contaminants proposed or promulgated by state agencies and EPA, and contaminants regulated to lower limits.

Program Challenges

- Provide training to Air Force supervisors, middle managers, and executives on their roles in making each restoration project a success.
- Enhance retention and career progression with incentives for restoration professionals to engage in CE career field advancement programs and opportunities, with formal recognition of project management excellence.

Critical Initiatives/Developments

- Assessment of installation restoration programs by conducting RPOs 18 months before installation's five-year review (ongoing)
- Establishment and maintenance of ERP-O Web site and collaboration page (2008)
- Establishment of a tracking system to monitor implementation of team recommendations, return on investment of ERP-O activities, consultation and document reviews (2008)
- Train AFCEE PMs in a range of chemistry, hydrogeology, toxicology, and environmental engineering topics (2009)

Services and Resources

Program resources on the AFCEE Technology + Transfer site: http://www.afcee.af.mil/resources/technologytransfer/index.asp

SME Biography

Dr. Santillan has worked for the Air Force for over 25 years as a chemist, hydrogeologist, and environmental scientist. He is currently the Air Force SME for environmental restoration and the manager of the Optimization Program and the Applied Chemical Sensor Program. He has a B.S. in chemistry and an M.S. in Agricultural Chemistry, both from the University of Arizona, Tucson, Ariz., and a Ph.D. in soils and irrigation from Utah State University, Logan, Utah. He is an instructor for online courses offered by the Interstate Technology Regulatory Council.

Fire Protection Engineering

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Scope

The Fire Protection Engineering SME recommends policy, provides guidance, and coordinates the exchange of information on all matters related to fire protection engineering management throughout the Air Force. The SME also ensures effective programs to support mission continuity, and provides operational and maintenance guidance to prevent adverse affects on operations. The SME serves as the Air Force representative on the DOD Fire Protection Engineering Working Group to develop consolidated technical criteria and on the Technical Support Working Group subgroup for fire protection features. The SME works closely with contract support activities to ensure that contract templates adequately address installation needs, and coordinates with career field managers to support expeditionary and force projection initiatives. The SME is a principal member of the national consensus code and standard writing committees that prepare the National Electric Code, the Life Safety Code, airport facilities standards, gaseous fire extinguishing system standards, and foam-water fire extinguishing system standards.

Vision

The Air Force will be the leader in providing mission continuity and a safe work/living environment for all DOD personnel.

Industry Trends

Rapidly evolving technologies targeted at minimizing costs and installation time of sprinkler systems in residential one- and two- family dwellings and townhouses (required by model codes as of December 2008).

Program Challenges

- Congressional interest in providing safety performance levels in operational theaters similar to those required in U.S. construction.
- The change of protection concepts for facilities where halon gaseous extinguishing agents were used in the past remains a concern. None of the alternative agents provide the effectiveness or safety of halon agents, nor are any of the alternatives a direct (drop-in) replacement. Each application requires a separate analysis to identify the correct combination of alternative features.

Critical Initiatives/Developments

- Examination of protection for storing, maintaining, and launching nuclear-capable delivery systems and for storing and maintaining nuclear/special weapons and development of new criteria that addresses the current weapons and assures capability with a much reduced arsenal. (2009)
- Evaluation of high-pressure water mist systems for protecting special applications, including special weapons storage/maintenance facilities, hush houses, and aircraft control towers. (2010)

Services and Resources

AFCESA Fire and Life Safety Engineering: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299936&channelPageId=-336217&parentCategoryId=-1900281&programId=1242492

AFCESA Fire Suppression Systems: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299934&channelPageId=-336217&parentCategoryId=-1900281

AFCESA Fire Detection and Alarm Systems: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299935&channelPageId=-336217&parentCategoryId=-1900281

AFCESA Fire Program Authorities: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299932&channelPageId=-336217&parentCategoryId=-1900281

Air Force Criteria on Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

Unified Facilities Criteria: http://www.wbdg.org/references/pa_dod.php

SME Biography

Mr. Walker brings 40 years of service to the fire and life safety field, serving as a fireman, at the University of Maryland Fire and Rescue Institute, and on active and reserve duty at base level. He has been the Air Force Chief Fire Protection Expert since 1987. Mr. Walker is a graduate of the University of Maryland. He is a member of the National Fire Protection Association, the International Association of Fire Chiefs, The Institution of Fire Engineers, and the International Code Congress.

Fuels Facilities

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Scope

The Fuel Facilities SME provides tools and technical consultation, information, and techniques for storing, distributing, and dispensing aviation and ground vehicle fuels. Key areas include transfer piping, above- and underground storage tanks, pressurized hydrant fueling systems, and vehicle service stations. The SME represents the Air Force on the DOD Fuels Facility Engineering Panel, comprising senior technical engineers of each service and the Defense Energy Support Center. The panel develops and updates standardized criteria, construction specifications, and designs across DOD. The SME is a member of the Society of Automotive Engineers aerospace subcommittee (AE-5C) for ground refueling.

Vision

Provide premier engineering expertise to ensure excellence in design, construction, and maintenance of fuels facilities for Air Force flight and ground vehicle operations.

Industry Trends

- Increased cost of steel and concrete has escalated costs of POL facility construction.
- Commercial aircraft fueling industry is exploring how to reduce fueling turnarounds.
- Increased awareness of tank high-level alarm logic due to 2005 catastrophic fire at the Hertfordshire Oil Storage Terminal.
- Additional Society for Protective Coatings inspection requirements for shop-fabricated aboveground storage tanks.

Program Challenges

- Providing fuels facility engineering support to installations and the warfighter despite the continuing drawdown of engineers with fuels facility knowledge and expertise
- Encouraging bases to take full advantage of the DESC S/R&M program for upgrading and maintaining fuels facilities

Critical Initiatives/Developments

- Initiative to certify fuels infrastructure for use of synthetic fuel blends (2011)
- Update UFC 3-460-03, "O&M for Fuels Facilities" (2011)

Services and Resources

AFCESA Fuels Facility Engineering CoP: https://wwwd.my.af.mil/afknprod/ASPs/CoP/OpenCoP.asp?Filter=OO-MS-CE-38

Liquid Fuels Maintenance CoP: https://wwwd.my.af.mil/afknprod/ASPs/CoP/OpenCoP.asp?Filter=OO-ED-PC-04

Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

SME Biography

Mr. Zapata has more than 20 years of Air Force civil engineer experience, serving as a mechanical engineer at base level and as a corrosion engineer at command level. Mr. Zapata is a registered professional engineer in Virginia and a NACE-certified cathodic protection specialist. He is a graduate of Texas Tech University and Hardin-Simmons University.

HVAC

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Scope

The HVAC Systems SME issues guidance on the design and operation of heat, chilled water, and ventilation systems, including central steam, high-temperature hot water, cogeneration, chiller water plants, central and localized distribution systems, and systems supporting single facilities. The goal is to provide systems that operate efficiently and are cost-effective, maintainable, and safe to operate while providing a clean, comfortable, and healthy environment for Air Force personnel. The SME is involved with the development of Air Force, DOD, and national standards in support of these goals. The SME is a member of the National Institute of Building Sciences Facility Maintenance and Operations Committee and the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), and works with these organizations to develop national standards and guidance to promote HVAC technology. The SME serves on the ASHRAE TC 9.1 subcommittee to oversee research conducted through ASHRAE on large HVAC systems.

Vision

Move HVAC technology forward by applying a broad base of knowledge and experience to promote sustainable systems, while developing methods, training, and programs to sustain the efficiency and effectiveness of existing HVAC systems; mentor to transform mistakes into experience.

Industry Trends

- ASHRAE Guideline Project Committee 1.3: Building Operation and Maintenance Training for the HVAC & R Commissioning Process
- GPC 1.2: Commissioning Process for Existing HVAC & R Systems
- Technical Committee 9.1: Large HVAC Systems
- NIBS Commissioning of Building Envelopes

Program Challenges

- Commissioning mechanical systems
- Transitioning to new refrigerants
- Supporting readiness and training (e.g., field-deployable environmental control units, Arctic Heater, AFIT course development and teaching, technician training)
- Providing reach-back field support
- Tutoring and mentoring base-level mechanical engineers
- Overseeing boiler inspection program

Critical Initiatives/Developments

- Revise AFMAN 32-1094, "Criteria for Precision Measurement Equipment Laboratory Design and Construction" (Dec 2009)
- Revise Refrigerant Management Handbook (Apr 2010)
- Revise UFC 3-410-01FA, "Heating, Ventilation, and Air-Conditioning," to incorporate humid design criteria (Aug 2011)
- Develop guidance for applying phase-change materials in facility construction for load management and increasing effectiveness of passive designs (Aug 2010)
- Develop guidance for applying dedicated outdoor air systems to control humidity and provide positive ventilation control in new and existing facilities (Sep 2010)
- Provide technical support for developing a new field-deployable environmental control unit (2009)

Services and Resources

Air Force criteria on Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

Unified Facilities Criteria: http://www.wbdg.org/references/pa_dod.php

AFCESA Heating Systems: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299937&channelPageId=-336217&parentCategoryId=-1900281&programId=1242492

SME Biography

Mr. Hart's career has spanned 29 years while serving as a mechanical engineer for the Army Corps of Engineers and Alaska Air Command, and as a program manager and SME at AFCESA. Mr. Hart holds a master's degree from the University of Nebraska and is a licensed professional engineer in Alaska.

Hydrogeology

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Scope

The Hydrogelogy Program integrates installations' geological and hydrological natural resources into the Natural Infrastructure Asset Management Plan. Particular program emphasis is on Investigation Process-Optimization (IP-O), restoration activity that takes place prior to the site remedy. The SME serves as AFCEE's technical authority for IP-O, which includes providing tools, resources, expertise, processes, technical information, and techniques to achieve remedy-in-place at contaminated Air Force sites by 2012. The SME is responsible for overall program guidance, policies, promotion, and implementation and supports Air Force and DOD leaders on geology and hydrology matters. The SME also manages the Conceptual Site Model Program and provides leadership for Triad/rapid site characterization and development of the initial exit strategy. The SME oversees field activities and background studies for metals and emerging contaminants, and provides services for fate and transport, reviews, and project validation. The SME mentors, trains, and guides Air Force project managers and Asset Management environmental professionals, and advises the CE career field program on education, recruitment, retention, and professional registration opportunities.

Vision

Ensure that Asset Management divisions have an effective, efficient, and reliable resource to provide critical geological and hydrological consultation for an installation's natural infrastructure.

Industry Trends

- Better understanding of ground water availability and sustainability for aquifer systems
- Subsurface carbon mitigation options for sustainable mixed industrial/residential communities

Program Challenges

Developing a blueprint for the natural infrastructure for each installation, so that future land use can be taken into account when conducting and scoping any site investigations or clean-up actions needed to meet the 2012 remedy-in-place goal. For most installations, this information is lacking or, at best, spread across many different documents.

Critical Initiatives/Developments

- Project Validation Program (Annually)
- Conceptual Site Model (CSM) Initiative (2009)
- LTM and Background Study tools (2009-11)
- Integrated groundwater flow modeling for installation water supply and ERA sites (2011)

Services and Resources

Program resources on the AFCEE Technology Transfer site: http://www.afcee.af.mil/resources/technologytransfer/index.asp

SME Biography

Mr. Gillespie has more than 25 years of experience in conducting environmental studies for federal, state, and local governments. He completed a B.S. in geology/geophysics and a two-year postgraduate program in geology at Michigan State University, East Lansing, Mich. He also has a J.D. degree from the Thomas M. Cooley Law School, Lansing, Mich., and is a member of the State Bar of Michigan. After leaving Air Force active duty, he served for over 20 years as an oceanographer/geophysics officer for the U.S. Navy Reserve. Mr. Gillespie was a district groundwater specialist for the United States Geological Survey before coming to AFCEE, where he established the Remedial Process Optimization Outreach office. His special interest is building natural infrastructure blueprints, better known as the conceptual site model, for all Air Force installations.

Installation Planning

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Scope

The Installation Planning Program comprises Air Force policy, guidance, and technical assistance for base comprehensive planning to achieve sustainable installations with the right balance of new development, essential services, environmental protection, and innovative change. The SME manages the base planning program and provides technical services to OSD, Air Staff, MAJCOM, and installation-level planners and engineers on matters such as federal regulatory and DOD guidance and infrastructure planning, programming, design, construction, and maintenance for installations and various categories of facilities. As the Air Force comprehensive planning expert, the SME performs research, designs and develops programs, leads planning processes, conducts technical analyses, and effects innovative change to improve Air Force installation planning. The SME coordinates with the CE Career Field Manager to recruit, train, and retain Air Force community planners. The SME is involved with The Air Force Civil Engineer's Transformation initiatives on enterprise planning, airfield planning, asset management, and the integration of strategic and base comprehensive planning.

Vision

To guide the logical evolution of Air Force installation planning by adopting contemporary planning principles in sustainable development, smart growth, and resource conservation to achieve the Air Force Civil Engineer's vision for efficient, right-sized installations.

Industry Trends

- Smart growth and livable communities, affecting principles for sustainable installations
- Low-impact development /green infrastructure, allowing harmony between mission, environment, and installation
- Asset management business processes, affecting investment decisions for base facilities

Program Challenges

Supporting base and command community planners by providing expert installation planning guidance, reference, and technical support for installation planning programs.

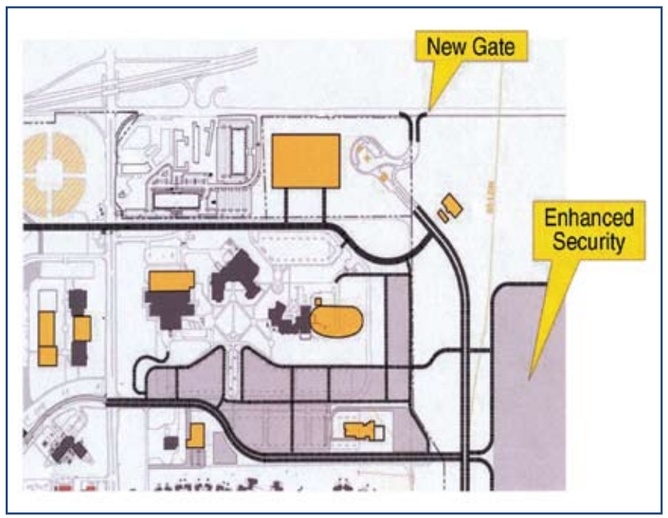
Critical Initiatives/Developments

- Revision of AFI and UFC publications to reflect sustainable site planning (e.g., smart growth, water-wise landscaping, low-impact development, etc.) (2009)
- American Planning Association and Federal Planning Division Training Workshop (Annually)

Services and Resources

Installation Planning subjects and products overview: https://www.my.af.mil/gcss-af/USAF/ep/browse.do?categoryId=-1426214&parentCategoryId=-544039&channelPageId=-336205

Detailed information and resources on the Air Force Comprehensive Planning CoP: https://wwwd.my.af.mil/afknprod/ASPs/CoP/OpenCoP.asp?Filter=00-EN-AF-25



SME Biography

Mr. Sanchez has over 20 years of experience as a planner for local, state, and federal agencies, including base, command, and headquarters levels within the Air Force. Mr. Sanchez is a retired Air Force officer who served with both active duty and Air Reserve components. He has a B.A. in political science from the University of Arizona, Tucson, Ariz., and an M.P.A. in urban planning from Arizona State University, Tempe, Ariz. He is an Air War College graduate, a member of the American Institute of Certified Planners and Chair-Elect of the Federal Planning Division of the American Planning Association.

Life Cycle Cost Engineering

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Scope

The Life Cycle Cost Engineering SME delivers guidance on detailed cost estimating and analysis, economic analysis, life-cycle costing, plant replacement value, area cost factors, requirement and management plans, and cost modeling. The program is wide-ranging, covering aspects from MILCON project programming and design and construction cost estimating to facility sustainment, restoration, and modernization forecasting. The SME researches requirements and develops tools for infrastructure and facility systems; participates in development of non-Air Force (e.g., DOD, commercial, industrial, and professional society) criteria with potential impacts to cost engineering programs; reviews existing programs for adequate Air Force direction, mission support, and effectiveness; and reviews new regulatory requirements as well as the latest technological developments. The SME represents the Air Force on the Tri-Service Cost Working Group developing area cost factors and unit cost guidance.

Vision

Facilitate and advance cost engineering skill, knowledge, creativity, and commitment to promote and leverage current technologies for facility design and sustainment excellence.

Industry Trends

- Migration of acquisition strategies to design-build versus traditional design-bid-build is driving new requirements for personnel to leverage historical data and parametric modeling.
- Use of knowledge-based condition assessment tools to develop and forecast S/R&M plans has introduced a necessary new skill set for cost engineers.

Program Challenges

- Constant rotation of project programmers (approximately 150 users of Parametric Cost Engineering System, or PACES, rotate each year).
- Providing cost engineering support to installations and MAJCOMs despite the continuing drawdown of engineers with knowledge and expertise.
- Expanding accessibility of cost engineering resources.

Critical Initiatives/Developments

- Convert PACES to 100% commercial databases. (Sep 2009)
- Transition to the Historical Analysis Generator (H_{II}) for data (2009)
- Convert the Air Force Historical Cost Handbook to a "1391 How-To Manual." (2010)
- Develop energy and utilities privatization parametric estimating tools. (Sep 2009)
- Establish a life-cycle approach to facility condition assessments. (ongoing)
- UFC 3-701-07, "DOD Facility Pricing Guide" (annually)
- UFC 3-700-01A, "Programming Cost Estimates for Military Construction" (2008)
- UFC 3-700-02A, "Construction Cost Estimates" (2008)
- UFC 4-020-01, "Security Facility Planning Manual" (2008)

Services and Resources

Air Force CE Project Planning and Programming CoP: https://afkm.wpafb.af.mil/ASPs/CoP/OpenCoP.asp?Filter=OO-ED-CE-03

Air Force CE Asset Management CoP: https://wwwd.my.af.mil/afknprod/ASPs/CoP/OpenCoP.asp?Filter=OO-EN-AF-39%20

US Army Corps of Engineers Tri-Service Automated Cost Engineering Systems CoP: http://www.hnd.usace.army.mil/traces/

Air Force Criteria on Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

Unified Facilities Criteria: http://www.wbdg.org/references/pa_dod.php

SME Biography

Mr. Shoaf has over 32 years of experience in cost engineering with the Navy, Marine Corps, and Air Force, having served as a structural engineer, engineering field division (EFD) project manager, deputy base civil engineer at MCRD Parris Island, and Chief of Military Construction EFD South. He has participated on numerous working groups developing the Navy's Web-based 1391 project generator, establishing design-build templates for project programs, and advancing PACES as a parametric cost tool. A graduate of Auburn University, Mr. Shoaf holds a professional structural engineering license in South Carolina and is a DOD-licensed cost consultant.

Natural Resources

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Scope

The Natural Resources Program focuses on developing installation integrated natural resources management (NRM) plans to provide for the protection of sensitive natural resources while ensuring no net loss in the capability of the land and water resources to sustain the military mission now and in the future. The SME works with other Air Force natural resources experts on policy, ecosystem management, and land-use planning to help conserve and enhance the natural infrastructure (land, water, and air) needed for Air Force operations. The SME provides technical assistance to commands and installations on installation integrated NRM plans and serves on interagency panels concerning natural resources protection and enhancement. The SME develops Air Force guidance to ensure compliance with federal laws for the protection of endangered species, wetlands, and other sensitive natural resources and provides oversight and management of Air Force revenue-generating (approximately $5M) conservation programs for forest management, agricultural outleasing, and hunting, fishing and outdoor recreation.

Vision

To provide for the enhancement of natural resources on military lands while ensuring no net loss in the capability of the natural infrastructure to sustain the military mission now and in the future.

Industry Trends

- Evolving initiatives on how DOD complies with the Endangered Species Act, such as Candidate Conservation Agreements and Recovery Credits, can allow for species conservation and the sustainment of military missions.
- New guidance anticipated on the rules by which agencies consult with the Fish and Wildlife Service.
- Rather than major revisions to Integrated Natural Resources Management Plans at five-year intervals, new DOD guidance emphasizes a "living document" with annual updates in collaboration with the U.S. Fish and Wildlife Service and state wildlife agencies.

Program Challenges

- Supporting Air Force transformation initiatives to meet 21st century challenges through program leadership, guidance, training, and the mentoring of natural resources professionals.

Critical Initiatives/Developments

- Natural Resources CoP Web site (2009)
- Training and certification program for DOD wildland firefighters (2009)
- New cooperative conservation agreement with U.S. Fish and Wildlife Service (2009)
- Improved natural resources program metrics (2010)

Services and Resources

Policy and guidance in Air Force Instruction (AFI) 32-7064, "Integrated Natural Resources Management ": http://www.e-publishing.af.mil/shared/media/epubs/AFI32-7064.pdf

Program management support and other guidance: http://www.afcee.af.mil/resources/conservation/natural/index.asp

SME Biography

Mr. Porteck holds a B.S. and an M.S. in forestry. He has worked as a forester for over 24 years, including assignments with the USDA Forest Service, the U.S. Army Corps of Engineers, and AFCEE. At AFCEE, he is the natural resources staff specialist and consultant on all aspects of forestry, ecology, agronomy, and natural resources management. Mr. Porteck completed training in the USFS Advanced Studies in Silviculture and an advanced study in logging systems, and is a DOD-certified pest management specialist.

Pavements

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Scope

The Pavements Engineering SME delivers guidance on the design, construction, evaluation, operation, maintenance, and repair of Air Force pavements — especially airfield pavements — by providing design and management aids (e.g., PCASE, PAVER); centralized contracting for pavement condition surveys and centralized execution of structural evaluations; specialized training on airfield pavement design and project quality control and assurance; consultation on pavement-related performance issues in the field; laboratory assistance to research performance issues and develop corrective actions; training and certifying engineers to perform contingency evaluations; and orchestrating research among numerous labs and agencies to develop materials, equipment, methods, and guidance related to pavement design, construction, evaluation, operation, maintenance, management, and repair. The SME promotes training opportunities, develops design criteria for Air Force facilities, and is a member of the Airport Cooperative Research Program, the Innovative Pavement Research Foundation, and the National Center for Asphalt Technology Airfield Asphalt Pavement Technology Program. The SME works closely with the other services, FAA, and NATO to develop common standards.

Vision

Facilitate and advance pavement design, construction, evaluation, maintenance, management, and repair knowledge to cost-effectively sustain Air Force mission requirements.

Industry Trends

- Federal Highway Administration is using precast concrete slabs to construct and repair high-volume road networks.
- State DOTs are using more warm-mix asphalt mixes in construction and increased amounts of recycled materials in pavements.
- Some northern-tier state DOTs are raising air entraining requirements and experimenting with air void analyzers during QC/QA to combat issues with short-term edge deterioration in rigid pavements.
- States and municipalities are using pavement preservation techniques (e.g., seal coats) to extend the life of flexible pavements.

Program Challenges

- Maintaining a pool of professional engineers capable of providing design, QAE, construction, repair, maintenance and management services to meet Air Force requirements
- Supporting contractors to execute Air Force pavement requirements effectively

Critical Initiatives/Developments

- Tri-Service Pavement Engineer Workshop (quadrennial)
- MAJCOM pavement engineer program review and workshop (annual)
- PAVER/PCASE 7.0 (2009)
- Pavement asset management program (2009)
- Critical Runway AssessmenT and Repair (CRATR) JCTD (2010)
- Deployable rubber removal kit (2010)
- Airfield damage repair update (2015)

Services and Resources

Tri-Service Transportation: https://transportation.wes.army.mil/triservice/default.aspx

Pavements and Airfield Damage Repair CoP: https://afkm.wpafb.af.mil/ASPs/CoP/OpenCoP.asp?Filter=OO-EN-CE-55

AFIT Pavement Design, Construction, and Maintenance CoP: https://wwwd.my.af.mil/afknprod/ASPs/CoP/OpenCoP.asp?Filter=OO-EN-AE-12

Pavement evaluations, PCI surveys, and friction evaluations: https://wwwmil.afcesa.af.mil/Directorate/CES/Civil/Pavements/pav_app/Pav_main.asp

AFCESA Pavements: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299925&channelPageId=-336217&parentCategoryId=-1900281&programId=1242492

Air Force criteria on Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

Unified Facilities Criteria: http://www.wbdg.org/references/pa_dod.php

SME Biography

In his 22-year career, Dr. Rutland has served as a civil engineer at base level, the Air Force Weapons Laboratory, and the Defense Threat Reduction Agency; as a base civil engineer; and as senior pavements engineer and SME at AFRL and AFCESA. He is a member of the Society of American Military Engineers and the American Concrete Pavement Association, and is a registered professional engineer in Florida. Dr. Rutland is a graduate of the University of Illinois and the University of New Mexico.

Pest Management

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Scope

The Pest Management SME recommends policy, provides guidance, and coordinates the exchange of information on all matters related to pest and grounds management throughout the Air Force. The SME ensures environmentally sound and effective programs are present to prevent pests and disease vectors from adversely affecting operations; ensures that grounds maintenance contract templates and pest management operations meet Air Force standards; and interacts with the Bird/Wildlife Aircraft Strike Hazard office on questions related to vegetation, insect, and vertebrate pest management on airfields. The SME represents the Air Force on the Armed Forces Pest Management Board.

Vision

The Air Force will be the leader for innovative prevention and management of disease vectors and pests. Grounds maintenance will be cost-effective and energy-efficient to meet mission requirements and present an aesthetically pleasing appearance.

Industry Trends

- Development of effective integrated pest management strategies to address the global movement of vector-borne diseases, which is forcing changes in pest management policy, research, and equipment requirements for deployed force health protection.
- Utilizing landscape practices adapted to the climate to minimize maintenance requirements and costs.

Program Challenges

- Biological encroachment by invasive pests results in devastating ecological and operational challenges on DOD installations and ranges.
- New Air Force grounds maintenance contract "best-value" standards require implementing sound contracting and best management practices (water conservation, pesticide reduction, proper fertilization and mowing practices).
- The Air Force is required to have all pest management plans current, maintain pesticide use at or below the FY02/FY03 average, and certify all applicators; manpower shortages hamper daily pest management operations.
- Grounds management must ensure justification for all mowed and irrigated areas, not just repeat work based on prior years' activity. Consequently, there is a need to shift the level of maintenance from improved to semi-improved and/or from semi-improved to unimproved areas to the maximum extent possible.

Critical Initiatives/Developments

- Develop web-based Integrated Pest Management Information System database (2011)
- Research airfield plant growth regulation to develop guidance for service contracts, BASH (2011)

Services and Resources

AFCESA Pest Management: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299949&channelPageId=-336217&parentCategoryId=-1900281&programId=1242492

Pest Management CoP: https://wwwd.my.af.mil/afknprod/ASPs/CoP/EntryCoP.asp?Filter=OO-EN-CE-46

Armed Forces Pest Management Board: http://www.afpmb.org

UFGS 31 31 16, "Soil Treatment for Subterranean Termite Control": http://www.wbdg.org/ccb/DOD/UFGS/UFGS%2031%2031%2016.pdf

Integrated Pest Management Information System: http://www.envirosoftinc.com/ipmis.html

SME Biography

Mr. Teig's 20-year career encompasses service as an entomologist for the Army and Air Force at both base and command level, and as a pest management SME at AFCESA. He is a licensed and/or certified pesticide applicator within DOD as well as in Florida, Louisiana, Minnesota, Virginia, and North Dakota. Mr. Teig serves as an Air Force Reserve medical entomologist, planning and executing aerial spray missions to manage disease vectors and invasive weeds. He is a graduate of the University of Minnesota and North Dakota State University, and was a doctoral candidate at the University of Missouri.

Ranges

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Scope

The Ranges Program is divided into two main multifaceted focus areas: Operational Sustainment and the Military Munitions Response Program (MMRP). The responsibilities include providing tools, resources, expertise, processes, technical information, and techniques to achieve the diverse goals in both programs. The SME is responsible for reviewing and commenting on policies and guidance from SAF and DOD, and providing technical support to MAJCOMs, installations, A7CAQ, and A7CAR, as required. The SME oversees much of the Operational Range Sustainment Program, including the Operational Range Assessment Program and provides input to the Air Force Restoration PMO concerning the MMRP. The SME is also responsible for Air Force criteria, standards, manuals, and directives related to environmental issues involving ranges. The SME coordinates with the career field manager on recruiting, training, educating, and retaining personnel in both program areas. The SME represents the Air Force on tri-service and national committees developing DOD and industry range sustainability and clean-up standards.

Vision

To facilitate and advance the sustainability of all Air Force ranges to support warfighter test and training efforts, and to clean up former ranges to make them safe for future use.

Industry Trends

Shortage of UXO technicians may impact DOD's ability to execute the removal action phase of the MMRP.

Program Challenges

- Operational Range Sustainability — Building a sustained partnership among the A3AR, Security Forces, and the EOD community, and the asset managers in A7C to facilitate long-term sustainability of all operational Air Force ranges (small arms, EOD, and the air-to-ground facilities)
- MMRP — Identifying cost-effective approaches to meet the goal of remedy-in-place for MMRP sites by 2020

Critical Initiatives/Developments

- Participation in the Environmental Security Technology Certification Program Munitions Management Pillar to identify technologies for more efficient and cost-effective clean-up of closed ranges (ongoing)
- Air Force participation in the tri-service development of realistic values for ecological risk screening for the Operational Range Assessment Program (Oct 2009)
- Establishment of a basis for presumptive remedy for small arms ranges in the MMRP (2010)

Services and Resources

AFCEE's range products may be found at http//www.afcee.af.mil/resources/ranges/index.asp.

SME Biography

Mr. Haliscak has a B.S. in agriculture and an M.S. in toxicology, and has worked as a scientist at HQ AFCEE since 1994. From 1982 to 1994, as both active duty military (U.S. Army) and a civilian, he worked in health and environmental and pest management at Ft. Sam Houston, Texas, and Aberdeen Proving Ground, Md. A member of the U.S. Army National Guard and Reserve since 1990, Mr. Haliscak currently serves as Commander, 7307th Medical Exercise Support Battalion, Medical Readiness and Training Command, Ft. Sam Houston, Texas.

Roofing

Position currently vacant; acting SME:
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Scope

The Roofing SME delivers guidance on facility roofing systems to achieve design, maintenance, and inspection excellence. The SME manages the program, develops design criteria for Air Force facilities, offers technical consultation, and represents the Air Force on tri-service working groups pertaining to roofing systems and components. The roofing program is wide-ranging, covering conventional built-up roofs; single-ply, modified bitumen, shingle, metal and tile sloped roofing; and vegetative roofs. The SME develops and maintains information and guidance on inspections, roof system selection guidance, energy conservation techniques, construction details, contracting for construction and inspection, and establishing base-wide maintenance programs.

Vision

Facilitate and advance the confluence of roof management skills, knowledge, creativity, and commitment, to promote and sustain design and maintenance excellence.

Industry Trends

- Vegetative/green roofing
- Reflective single-ply systems

Program Challenges

- Provide engineering support to maximize the life cycle and performance of Air Force roofing systems, which are critical to facility sustainability
- Expand the accessibility of roofing engineering and operational maintenance resources

Critical Initiatives/Developments

- Engineering study for green roof demonstration project at Peterson AFB, Colo. (2009)
- Promote roofing system maintenance and inspection to extend life cycle and sustainability (2009)

Services and Resources

AFCESA Roof Management: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299919&channelPageId=-336217&parentCategoryId=-1769215&programId=1242492

Air Force criteria on Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

Unified Facilities Criteria: http://www.wbdg.org/references/pa_dod.php

SME Biography

Mr. Nielsen has over 23 years of professional engineering experience in the engineering and construction field. He has served at base level in both SAC and PACAF as a civil engineering section chief, followed by staff assignments at HQ AFMC and HQ USAFE before becoming the AT/FP and structural SME at AFCESA in 2006. Mr. Nielsen is currently the SME for AT-FP construction, structural engineering, hardening, bridges, dams, roofing, and small arms ranges. Mr. Nielsen is a graduate of the University of Maine and holds a professional engineering license from Oregon.

Structural Engineering

Position currently vacant; acting SME:
Jeffrey Nielsen, P.E., HQ AFCESA/CEOA
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Scope

The Structural SME provides guidance on facility structural design. The SME promotes design and construction excellence, develops design criteria for Air Force facilities, offers structural technical consultation, provides experience, and represents the Air Force on the tri-service Structural Discipline Working Group (SDWG) to develop consolidated DOD engineering standards and criteria. The structural program is wide-ranging, covering conventional facility and non-facility design, seismic engineering, hardening, and geotechnical engineering. The program also encompasses the federal bridge inspection program and the federal dam inspection program. The SME is a member of the American Concrete Institute and the Interagency Committee on Seismic Safety in Construction.

Vision

Facilitate and advance the confluence of structural engineering skill, knowledge, creativity, and commitment to promote and sustain design excellence of Air Force facilities.

Industry Trends

- Carbon-reinforced column wraps for seismic upgrade
- Bridge inspections

Program Challenges

- Providing structural engineering support to installations and the warfighter despite the continuing drawdown of engineers with structural knowledge and expertise.
- Expanding accessibility of structural engineering resources.

Critical Initiatives/Developments

- New consolidated structural engineering criteria: UFC 3-300-01 (2009)
- Initial bridge inspection program submission (2009)
- Consolidate Army, Navy, and Air Force bridge inspection criteria in joint UFC (2009)
- Revise criteria for design and construction on hardened facilities (2009)

Services and Resources

Structural Engineering Support CoP: https://wwwd.my.af.mil/afknprod/ASPs/CoP/OpenCoP.asp?Filter=OO-EN-CE-59

AFCESA Seismic Engineering: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299922&channelPageId=-336217&parentCategoryId=-1900281&programId=1242492

Air Force Criteria on Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

Unified Facilities Criteria: http://www.wbdg.org/references/pa_dod.php

SME Biography

Mr. Nielsen has over 23 years of professional engineering experience in the engineering and construction field. He has served at base level in both SAC and PACAF as a civil engineering section chief, followed by staff assignments at HQ AFMC and HQ USAFE before becoming the AT/FP and structural SME at AFCESA in 2006. Mr. Nielsen is currently the SME for AT-FP construction, structural engineering, hardening, bridges, dams, roofing, and small arms ranges. Mr. Nielsen is a graduate of the University of Maine and holds a professional engineering license from Oregon.

Toxicology and Risk Management

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Scope

The program consists of guidance on toxicology and risk assessment, which includes providing tools and processes, techniques, technical information, resources, training, and expertise to achieve excellence in environmental risk assessment. The SME serves as AFCEE's technical authority for toxicology and risk assessment practitioners; supports the environmental restoration Peer Review program; supports Air Force and DOD leaders on toxicology and risk assessment matters; and coordinates with the career field manager on mentoring, training, recruiting, retaining staff, and providing professional registration opportunities. The SME is responsible for program guidance, policies, outreach, and enactment. The SME also supports planning, implementation, and review of human health and ecological assessments and represents the Air Force on tri-service and interagency workgroups.

Vision

Promote the implementation of good toxicology and risk assessment practices and procedures to enhance project planning and facilitate sound decision-making regarding Air Force projects, and ensure that installations and the Restoration-Program Management Office have an effective and reliable resource for critical toxicity and risk assessment.

Industry Trends

- Updated methods to characterize exposure and assess risk in indoor air based on regulatory and community interest in vapor intrusion from volatile compounds.
- Development of new procedures measuring contaminant interaction with soil components and its impact on the bioavailability of contaminants.

Program Challenges

- Provide a multi-faceted internship program to maintain a pool of professionals.
- Ensure experienced Air Force toxicologists have career-broadening opportunities in laboratory and consultation organizations.
- Provide evidence of adequate cross-feed between the CE career program and the scientist and engineer career program to ensure that career opportunities exist

Critical Initiatives/Developments

- Risk assessment programming guidance (2009)
- Remediation risk management guidance (2009)

Services and Resources

AFCEE's toxicology and risk assessment products: http://www.afcee.af.mil/resources/technologytransfer/guidanceforcontractdeliverables/index.asp

SME Biography

Dr. Brock has Doctor of Veterinary Medicine and Master of Public Health Epidemiology degrees. He retired from the active duty in 1993 with over 23 years as an Air Force health professional. He has experience in industry and for state and local government and has worked at AFCEE as Air Force toxicologist since 2002. In 2007, he achieved Defense Acquisition Level II Certification. Dr. Brock is a licensed veterinarian in Texas, Illinois, and Colorado, and a diplomate of the American College of Veterinary Preventive Medicine. He is also a published author. As the toxicology SME, he developed a new approach to treat chlorinated pesticides using biological materials to destroy highly persistent contaminants in place.

Water Quality

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Scope

The Water Quality program comprises a wide range of technical development, implementation, interpretation, and problem resolution responsibilities for programs, systems, and projects throughout the Air Force. The SME manages the program and identifies, develops, manages, reviews, and advocates for research and development within the Air Force program. The SME works with internal and external customer organizations to assure regulatory compliance, technical sufficiency, and clarity of the agency's water quality guidance, products, policy, and services. The SME's recent experience includes regulatory compliance resolution for Air Force wastewater treatment and collection systems, regulatory compliance issues related to storm-water runoff from Air Force small arms ranges, public water system status for housing privatization, water program activity management plans, and environmental audits.

The SME represents the Air Force with other DOD services, regulatory agencies, and industry to establish joint technical guidance. The SME and the career field manager work together to identify training requirements and develop courses of study for all Air Force water quality technical experts.

Vision

To advance Air Force water asset management effectiveness through correctly applied engineering knowledge, skill, innovation, and proactive operational leadership to exceed AFSO21 expectations.

Industry Trends

- Privatization of utility systems is an important domestic and international topic
- Solutions for global water consumption, which has increased six-fold in the last century

- Stringent regulatory pressures to include small system performance standards
- Solar and wind energy employed to reuse and distribute water
- Solutions for replacing aging infrastructure on constrained budgets

Program Challenges

- Sustain the Air Force water quality assets to support the "fly and fight" mission.
- Provide a cadre of highly skilled water professionals at all levels that are trained, certified, and qualified, and make the necessary effort to retain them.

Critical Initiatives/Developments

- MAJCOM water PM quarterly teleconference (2008) and annual workshop (ongoing)
- Guidance for asset management water and wastewater key performance indicators (2009)
- Environmental quality water programming policy and guidance (2009)
- Environmental training course development and instruction (2009)
- Water and wastewater in-house constructed data resource for effective management (2010)
- Development and implementation of AF water professionals career plans (2010)

Services and Resources

The AFCEE Water Resources Web site : http://140.140.58.122/products/water/default.asp

Air Force Water and Wastewater CoP: https://afkm.wpafb.af.mil/ASPs/CoP/OpenCoP.asp?Filter=OO-MS-CE-37

SME Biography

Dr. Isaacs has been an Air Force civil engineer – both military and civilian — for over 36 years, with experience at base, command, and headquarters levels. He holds a B.S. in electrical engineering, an M.S. in environmental science, and a Ph.D. in environmental engineering. He is a registered professional engineer in New Mexico and has published and presented numerous papers, including publication of an article on the characterization of metals in soils and storm waters from Air Force small arms firing ranges. His research has shown potential application of nanocomposite amine functionalized organosilicate materials as metal ion adsorbents in aqueous environments.

Water/Wastewater

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Scope

The Water And Wastewater SME provides oversight, consultation, and guidance on the water and wastewater systems life cycle to manage and operate these systems efficiently and effectively. The SME develops design criteria; oversees the application of DOD, Air Force, and industry standards and criteria; provides engineering technical consultation; and represents the Air Force on water and wastewater issues. The SME coordinates with the career field manager on mentoring, training, education, recruitment, and retention of Air Force water and wastewater engineers and water and plumbing shop personnel. The SME is a member of the Air and Waste Management Association and American Water Works Association (AWWA).

Vision

Ensure that water and wastewater systems are modernized, upgraded, repaired, managed, operated, and maintained to provide the level of service required by industry standards and exceed the requirements for privatized systems.

Industry Trends

- AWWA is emphasizing the cost of water, which is increasing annually.
- Municipalities and installations will rely more on dual water systems (potable and nonpotable) to relieve the burden on potable water demand.
- Wastewater treatment plants are converting to water reutilization plants to meet the increased demand for non-potable water.
- Municipalities will require higher fees for their utility products to pay for upgrading their aging water and wastewater infrastructure.

Program Challenges

- Convert Air Force water systems to use an optimal balance of potable and nonpotable water
- Upgrade Air Force water distribution systems and wastewater collection systems to exceed their design life
- Implement asset management for water, wastewater, and storm water systems

Critical Initiatives/Developments

- Swimming pool drain cover compliance with ASME/ANSI A112.19.8-2007 (2009)
- AFJMAN 32-1072, "Water Well Drilling Operations" (2009)
- Air Force Preservation of Water Rights Policy (2009)
- Consolidation of water and wastewater UFCs (2009)

Services and Resources

AFCESA Water Systems: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299921&channelPageId=-336217&parentCategoryId=-1900281&programId=1242492

AFCESA Wastewater Systems: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=1299927&channelPageId=-336217&parentCategoryId=-1900281

Unified Facilities Criteria: http://www.wbdg.org/references/pa_dod.php

Air Force Criteria on Whole Building Design Guide: http://www.wbdg.org/ccb/browse_org.php?o=33

SME Biography

Over a span of 33 years, Mr. Jacks has served as an environmental technician for the city of St. Petersburg, Fla., and in the sanitary and civil areas for AFCESA. Mr. Jacks has a varied background in environmental programs (primarily related to facility operations), has served as the water/wastewater SME since 2004, and has been involved with water and wastewater programs since 1999. He has also worked in the air quality, asbestos, lead-based paint, radon mitigation, and solid waste programs. He is the author of AFR 91-42 (AFI 32-1052), "Facility Asbestos Management." Mr. Jacks is a graduate of California State College at Hayward and the University of Florida.